

REMARKS

Initially, Applicants would like to express their appreciation to the Examiner, Ms. Helen C. Kwok, for the telephonic interview held on April 7, 2005, with their attorney Mr. Daniel B. Moon. During the interview, Mr. Moon explained that combining the teachings of the references as applied in the Official Action was not proper under 35 U.S.C. § 103(a), and that even if the teachings were to be so combined, the combination would still lack features recited in the claims. The features of independent claims 1 and 17, and dependent claims 13 and 27, were discussed in detail.

Applicants would also like to express their appreciation to the Examiner for the detailed Official Action provided.

Upon entry of the above amendments, claims 13, 14 and 28 will have been amended. Claims 1-41 are currently pending. Applicants respectfully request entry of the present amendments, reconsideration of the outstanding rejections, and allowance of all the claims pending in the present application.

On pages 2-5 of the Official Action, claims 1-41 were rejected under 35 U.S.C. § 103(a) as being anticipated by HAKAMATA (U.S. Patent No. 5,214,279) in view of BELLER (U.S. Patent No. 5,148,733).

Applicants respectfully traverse the rejection of claims 1-41 under 35 U.S.C. § 103(a).

Claim 1 includes, inter alia, "an electrical coil having a substantially linear longitudinal axis within said coil, at least a portion of both tines of said tuning fork being located within said coil and parallel to said axis, with no portion of said coil being located between the tines of said tuning fork".

Claim 17 includes, inter alia, "locating at least a portion of said tines within an electrical coil parallel to a substantially linear longitudinal axis of said coil, with no portion of said coil being located between the tines of said tuning fork, said longitudinal axis of said coil being within said coil".

As an initial matter, Applicants submit that HAKAMATA lacks any disclosure of *an electrical coil having a substantially linear longitudinal axis therein*, as recited in claims 1 and 17. In this regard, Applicants note that the embodiment shown in Figure 17 of HAKAMATA, and discussed at column 16, lines 26-68, is the only embodiment which includes a coil which is wound around a tuning fork. However, Applicants note that coil 31S is wound around the tuning fork 30 to form *a curved, U-shaped coil*, as shown in Figure 17. Accordingly, Applicants submit that coil 31S clearly does not include a *substantially linear longitudinal axis therein*. Further, Applicants note that the Examiner has not addressed this deficiency in the teachings of HAKAMATA in the Official Action. Accordingly, Applicants submit that the rejection under 35 U.S.C. § 103(a) is improper at least for this reason.

Applicants further submit that HAKAMATA lacks any disclosure of *a pair of tuning fork tines having portions thereof located within such a coil, parallel to such a substantially linear longitudinal axis, with no portion of the coil being located between the tines of the tuning fork*. On page 3 of the Official Action, the Examiner appears to acknowledge that the coil 31S in HAKAMATA has portions located between the tines of the tuning fork 30 (particularly since it is individually wrapped about each separate tine). In this regard, Applicants note that the tines of tuning fork 30 are not located within coil 31S *parallel to a substantially linear longitudinal axis of the coil*. Further still, since the coil 31S is separately wound around each of the tines of tuning fork 30, it is clear that portions of the coil 31S are *located between the tines of the tuning fork*. As shown, for example, in Figures 1 and 4 of the present application, the tuning fork tines of the present invention are not individually wrapped by a coil, but are instead both located within the coil and parallel to a substantially linear inner longitudinal axis thereof.

The Examiner takes the position that BELLER discloses a coil 84 wrapped around a tuning fork pole piece without passing between tines 12, 14 (note Figs. 10 and 11). However, Applicants submit that the teachings of BELLER are not directed to tuning forks, and that any disclosure of a wrapped coil in BELLER would not have motivated one of ordinary skill in the art to modify the system of HAKAMATA as suggested by the Examiner.

Applicants note that the Examiner appears to have focused on a portion of BELLER which describes *the shape* of a pole piece as being *the shape* of a tuning fork (i.e., column 2, lines 15-18: “six periodically spaced uprights of ferromagnetic material, each having the shape of a tuning fork. The uprights of the tuning fork can be of either a rectangular or cylindrical cross section.”) However, Applicants submit that none of the pole pieces 10, 20, 30, 40 and 80 disclosed in BELLER are tuning forks, nor do they function as tuning forks. In this regard, Applicants note that the disclosure of BELLER is directed to magnetic pickups for electric stringed instruments. Such a pickup has pole pieces which conduct magnetic flux upward toward the strings. The vibration of the strings by the operator interacts with the magnetic field to produce changes in the paths of flux lines. The pickups also have coils in which voltage is produced due to such changes (note Figs. 1 and 2; column 1, lines 7-24; and column 3, lines 15-41).

BELLER recognized that the magnetic flux conducted by the pole pieces could in fact interfere with the vibration of the strings (note Figs. 7 and 8; column 1, line 25 through column 2, line 3; column 3, lines 42-56; and column 4, line 63 through column 5, line 2). BELLER’s solution to this problem was to provide a pole piece having a slot or space between two projection, such as 12 and 14 in the embodiment of Fig. 3 (note Figs. 3-6, 9-13; the Abstract; column 2, lines 6-31, 38-53; column 3, lines 59-65; column 4, lines 1-5, 15-19; and column 5, lines 3-8).

Accordingly, Applicants submit that it is clear that the pole pieces in BELLER are not tuning forks and do not operate as tuning fork in terms of vibration or resonance (regardless of BELLER's description regarding their "shape" being like that of a tuning fork). Rather, Applicants submit that it is clear from BELLER that the slots 18, 22 are merely provided to prevent magnetic flux guided upwards by the pole piece from substantially interfering with the vibration of the overlying string (note Figs. 9, 12, 13; column 4, lines 1-5, 15-19; column 5, line 20-26). Applicants further submit that there is no disclosure in BELLER that the pole pieces 10, 20, 30, 40 and 80 vibrate or resonate. Rather, the pole pieces merely guide magnetic flux upwards, and the vibration of the strings interact with the magnetic field to effect flux line paths, which produces voltage in the coil 84. Applicants further note that the coil 84 in BELLER surrounds a plurality of such pole pieces. Accordingly, Applicants submit that BELLER could not reasonably be characterized as teaching a coil wrapped around a tuning fork without passing between tines thereof.

In addition to the lack of any teaching of a tuning fork wrapped with a coil (much less a coil which does not pass between tines of such a tuning fork) in BELLER, Applicants further submit that the system of BELLER, which is directed to magnetic pickups for electric stringed instruments, is not analogous to the scanning microscope system of HAKAMATA. Further, Applicants submit that the system of BELLER, *which*

*does not in fact include a tuning fork*, could not reasonably be characterized as providing any teaching or motivation for one of ordinary skill in the art to modify the tuning fork system of HAKAMATA. In this regard, Applicants also note that the coil 84 in BELLER surrounds a *plurality* of elements (i.e., pole pieces), while the coil 31S in HAKAMATA is wrapped around a *single* element (i.e., tuning fork 30).

Accordingly, for at least the above-noted reasons, Applicants submit that it would not have been obvious to one of ordinary skill in the art to modify the system of HAKAMATA as suggested by the Examiner.

Applicants also submit that dependent claims 2-16 and 18-41, which are at least patentable due to their respective dependencies from claims 1 and 17, for the reasons noted above, recite additional features of the invention and are also separately patentable over the prior art of record.

For example, as shown in Figure 17, it would appear that the coil 31S vibrates with the tine since it is tightly wound there about, rather than the protruding portion vibrating by more than can be accommodated by the coil (claims 4, 20); the coil 31S is clearly rectangular (due to the cross sectional shape of the tines) rather than elliptical (claims 5, 21); and its major axis is not in the vibration plane (claims 5, 21), but instead transverse thereto. In this regard, Applicants submit that column 16, lines 31-32 (which merely states that the coil is wound about the tuning fork) provides no support for the Examiner's

position that the coil is elliptical. Further still, it is clear that the tuning fork itself serves as the former for coil 31S (claim 12). Further, it is not clear that the system shown in Figure 17 includes additional magnetically permeable material for performing the function recited in claims 6 and 22, and, contrary to the Examiner's stated position, iron cores 30F are clearly not permanent magnets (claims 9, 26). Applicants further submit that there is no teaching in HAKAMATA to taper the coil according to the deflection curve of the tines (claim 11), or to provide one tine as more massive to remain substantially undeflected (claims 7, 23), or to provide such a more massive tine as tapered to accommodate the deflection of the other tine (claims 8, 24). Applicants submit that such modifications would not have been obvious to one of ordinary skill in the art at least because the tines shown in Figure 17 of HAKAMATA are not side-by-side in the same coil. Accordingly, it is clear that spacing during vibration would not have been a concern in the system of HAKAMATA.

Further still, Applicants submit that there is no disclosure that the embodiment shown in Fig. 17 of HAKAMATA includes a sensor to provide a signal indicative of the *position* of a tine (claims 13, 27), much less the specific sensors recited in claims 14, 28, 32-35 and 38-41. In particular, Applicants note that there is no disclosure of such *position* sensing at column 3, lines 3-42 of HAKAMATA. Accordingly, Applicants submit that the subject matter of these dependent claims is not disclosed in the reference,

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and clearly would not have been obvious to one of ordinary skill in the art.

Applicants further submit that the modifications suggested by the Examiner with regard to subject matter of the dependent claims are clearly the result of impermissible hindsight reasoning, based upon the teachings of the present application, rather than the teachings of the reference itself.

Applicants respectfully submit that the rejection of claims 1-41 under 35 U.S.C. § 103(a) is improper at least for each and certainly for all of the above-noted reasons. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection, and an early indication of the allowance of these claims.



SUMMARY AND CONCLUSION

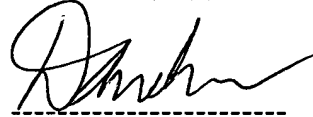
Entry and consideration of the present amendment, reconsideration of the outstanding Official Action, and allowance of the present application and all of the claims therein are respectfully requested and now believed to be appropriate.

Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so.

Any amendments to the claims that have been made in this amendment, which do not narrow the scope of the claims, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered cosmetic in nature, and to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should there be any questions or comments, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,  
HARRIS et al.



Bruce H. Bernstein  
Reg. No. 29,027

**Daniel B. Moon**  
**Reg. No. 48,214**

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GREENBLUM & BERNSTEIN, P.L.C.  
1950 Roland Clarke Place  
Reston, VA 20191  
(703) 716-1191